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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,037	05/10/2006	Daniel Hendrix	016906-0510	3893

22428 7590 01/23/2009  
FOLEY AND LARDNER LLP  
SUITE 500  
3000 K STREET NW  
WASHINGTON, DC 20007

EXAMINER
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WALBERG, TERESA J

ART UNIT	PAPER NUMBER
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3744

MAIL DATE	DELIVERY MODE
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01/23/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/579,037	<b>Applicant(s)</b> HENDRIX ET AL.	
	<b>Examiner</b> Teresa J. Walberg	<b>Art Unit</b> 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 29 October 2008 has been entered.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 11-17, 19, 21, 23, and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dimitriou (4,572,766) in view of Wei et al (2004/0067414).

Dimitriou discloses a heat exchanger with disk structure including a plurality of disks (Fig. 7), each pair of adjacent disks defining an intermediate space through which a heat transfer medium is configured to flow (Fig. 7), a heat transfer medium inlet (26, 27), a heat transfer medium outlet (53), a first set of at least two heat transfer medium ducts (26, 27 in Fig. 4) in fluid communication between each intermediate space and one of the heat transfer medium inlet and the heat transfer medium outlet (Figs. 4 and 5), the first set of at least two heat

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transfer medium ducts runs perpendicular to the plane of the disks (26, 27), each intermediate space having a first set of two openings configured to permit flow to enter the intermediate space (26, 27) and a second set of two openings (32, 33) configured to permit flow to exit the intermediate space (Fig. 4), the first set of at least two heat transfer medium ducts is in fluid communication between the first set of two openings of each intermediate space and the heat transfer medium inlet, and wherein a second set of at least two heat transfer medium ducts is in fluid communication between the second set of two openings and the heat transfer medium outlet (Figs. 4 and 5), the plurality of disks having an axially symmetrical design (Fig. 4), the regions of the first and second sets of openings having a raised design such that charge air could flow through between the pairs of adjoining disks (Figs. 4 and 5), the intermediate space being configured such that the heat transfer medium is distributed over an entire width of the intermediate space (Fig. 4).

Dimitriou does not state that the heat exchanger is a charge-air coolant radiator or an oil cooler. However, charge-air coolant radiators and oil coolers are known in the heat exchanger art. It would have been obvious to one of ordinary skill in the art to use the heat exchanger of Dimitriou as a charge-air coolant radiator or an oil cooler as a matter of intended use.

Dimitriou does not disclose the two heat transfer medium ducts being in fluid communication with the same heat transfer medium inlet.

Wei et al disclose a heat exchanger having two heat transfer medium ducts (see Fig. 3) which are in fluid communication with the same heat transfer medium inlet (300).

It would have been obvious in view of Wei et al to connect the two heat transfer medium ducts of Dimitriou to be in fluid communication with the same heat transfer medium inlet, the motivation being to reduce the number of fluid connections needed for the heat exchanger.

4. Claims 18, 20, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dimitriou (4,572,766) in view of Wei et al (2004/0067414) and further in view of Voss et al (5,230,966).

Dimitriou in view of Wei et al disclose a heat exchanger having the claimed structure, with the exception of the heat transfer medium inlet having a branching section designed in a form of an arc of a circle and having a bend of 30 to 90 degrees as seen in a flow direction and the heat transfer medium outlet having a branching section designed in a form of an arc of a circle and having a bend of 30 to 90 degrees as seen in a flow direction.

Voss et al discloses a heat exchanger having heat transfer medium inlets and outlets with branching sections designed in a form of an arc of a circle and having a bend of 30 to 90 degrees as seen in a flow direction.

It would have been obvious to one of ordinary skill in the art in view of Voss et al to use heat transfer medium inlets and outlets with branching sections

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designed in a form of an arc of a circle and having a bend of 30 to 90 degrees as seen in a flow direction with the heat exchanger of Dimitriou in view of Wei et al, the motivation being to provide improved fluid distribution.

5. Applicant's arguments with respect to claims 11-27 have been considered but are moot in view of the new ground(s) of rejection.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Teresa J. Walberg/  
Primary Examiner, Art Unit 3744

/TW/